Breaking the Disaster Cycle:
Future Directions in Natural Hazard Mitigation

Preparing Local Hazard Mitigation Plans; Participation in Local Hazard Mitigation Planning

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- **Objectives:**

12.1 Understand the format and content of local hazard mitigation plans

12.2 Describe the relationship between hazard mitigation plans and land use plans

12.3 Describe the basis for hazard assessment and vulnerability analysis

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- **Objectives:**

12.4 Identify best practice criteria for preparing local hazard mitigation plans

12.5 Participate in an exercise to plan for citizen participation in local hazard mitigation planning

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- **Objective 12.1**
  - Understand the format and content of local hazard mitigation plans:
    - Systematic assessment of hazards
    - Analysis of community vulnerability to hazards
    - Strategy for mitigation
    - Implementation
      - ✓ Transferable Development Rights (TDRs)
      - ✓ Strategic infrastructure investments
      - ✓ Increased public awareness
    - Monitoring and evaluation

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- **Figure 12.1 *:* Format of Pitt County, North Carolina, Hazard Mitigation Plan**

Section 1	Introduction and Executive Summary
Section 2	Hazard Mitigation Strategies
Appendix A	Hazard Identification and Analysis
Appendix B	Assessment of Vulnerability
Appendix C	County Capability Assessment
Appendix D	Evaluation of County Policies and Ordinances
Appendix E	Project Schedule

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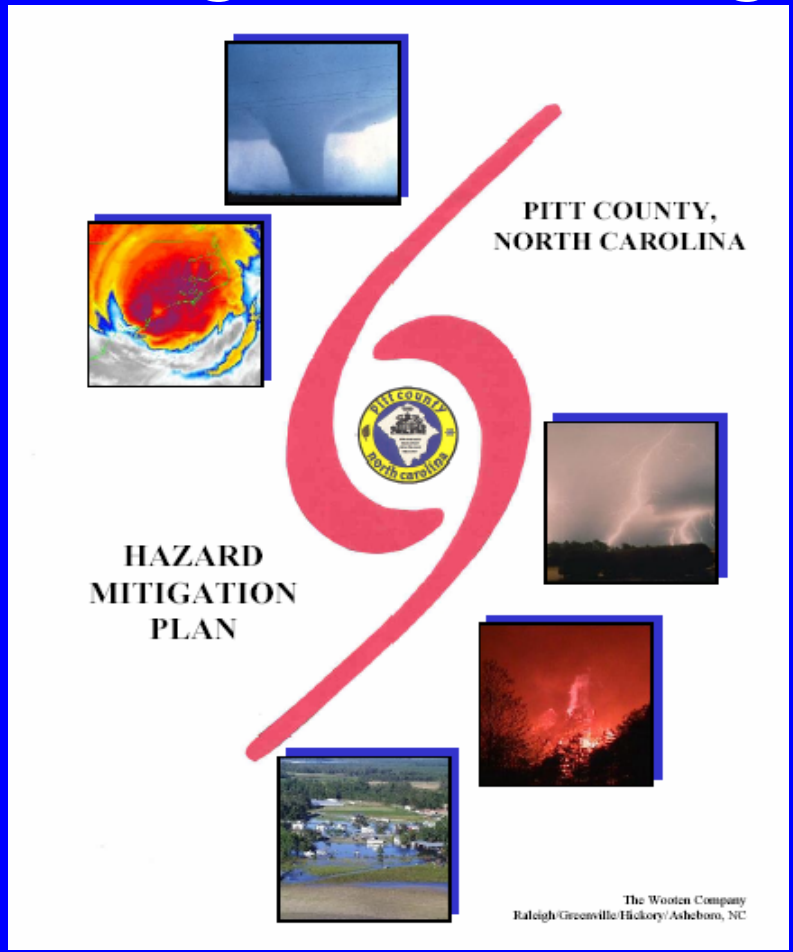
Pitt County, North Carolina
Hazard Mitigation Plan



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- **Figure 12.2 Hazards Assessment**
  - *Type* of natural hazard that threaten the community
  - *Frequency and strength* of each hazard
  - *Areas* at risk
  - *Likelihood* of occurrence (probability)
  - Possible *impacts* on the community

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- **Figure 12.3 Vulnerability Analysis**

Key steps include:

- Identify current and future areas of *greatest* risk
- Conduct inventory of people and properties in vulnerable areas
- Prepare map showing vulnerable areas
- Analyze policies, programs and ordinances that may affect vulnerability

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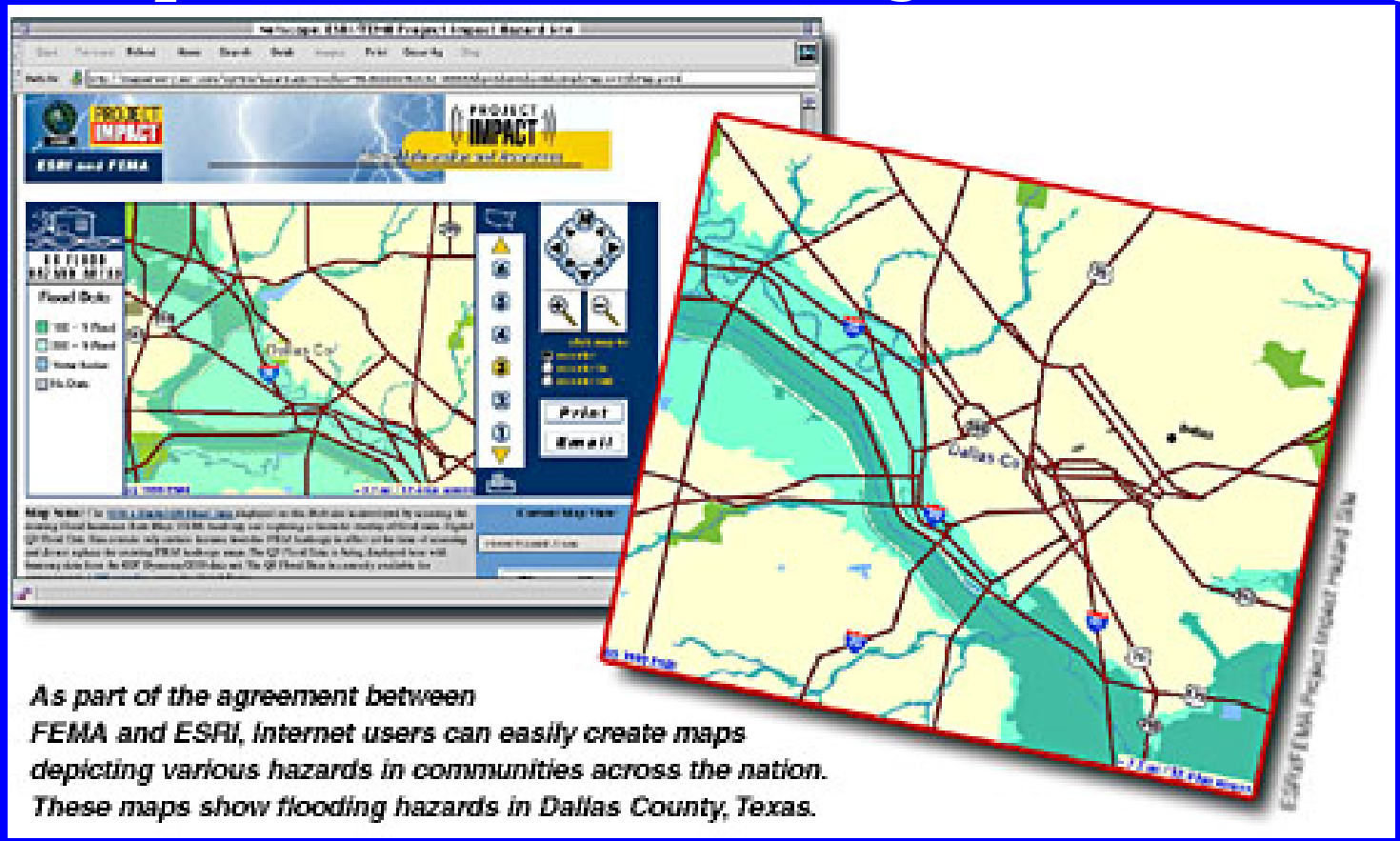

As part of the agreement between FEMA and ESRI, Internet users can easily create maps depicting various hazards in communities across the nation. These maps show flooding hazards in Dallas County, Texas.

Hazard maps are critical to effective mitigation planning. **(Source: FEMA)**

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- **Figure 12.4 Indicators of Hazard Mitigation Success**

Housing

- Number or percentage of households living in high risk areas
- Number of repetitively damaged structures
- Percentage of households with insurance against natural hazards

Businesses

- Number of businesses in high risk areas
- Number of repetitively damaged structures
- Number of businesses with insurance against natural hazards

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- **Figure 12.4 Indicators of Hazard Mitigation Success**

Infrastructure and critical facilities

- Number and square footage of critical facilities (hospitals, police and fire stations, schools, etc) located in hazard-prone areas
- Number of these that have been protected against damage from natural hazards
- Number of repetitively damaged facilities
- Number of infrastructure facilities (roads, bridges, sewage treatment plants, water treatment plants) located in hazard-prone areas
- Number of these that have been protected against damage from natural hazards

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- **Figure 12.4 Indicators of Hazard Mitigation Success**

Natural Environment

- Number of unsafe land use activities (e.g., junkyards or chemical storage facilities) that take place in hazard-prone, environmentally-sensitive areas such as floodplains
- Number of commercial or industrial facilities in hazard-prone, environmentally-sensitive areas that have undertaken mitigation measures to reduce the likelihood of the release of hazardous materials
- For flood-prone areas, number of acres of wetlands and floodplains lost

Source: adapted from Hazard Mitigation in North Carolina: Measuring Success (2000).

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- **Objective 12.2**
  - Describe the relationship between hazard mitigation plans and land use plans:
    - Integrated, complementary documents
      - ✓ Stand alone hazard mitigation plans or
      - ✓ Hazard mitigation plan as part of land use plan
    - Both are constantly evolving
    - Long term focus
    - Meet multiple objectives through coordinated approach

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- **Objective 12.3**
  - Describe the basis for hazard assessment and vulnerability analysis:
    - Hazards assessment:
      - ✓ Type
      - ✓ Frequency and strength
      - ✓ Areas at risk
      - ✓ Probability
      - ✓ Impact

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- **Figure 12.5 Hazards Assessment for Pitt County, North Carolina**

Hazard Type	Probability	Potential Area Impacted	Potential Impacts	Hazard Index (Combined)
Hurricane	Moderate	Medium	Moderate	High
Flood	Moderate	Medium	High	High
Tornado	High	Small	Low	Moderate
Nor'easter	Moderate	Medium	Moderate	High
Thunderstorm	Moderate	Small		Low
Severe Winter Storm	Low	Medium	Moderate	Moderate
Wildfire	Low	Small	Low	Low
Earthquake	Low	Small	Low	Low
Landslide	Low	Small	Very Low	Low

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- **Objective 12.3**
  - Describe the basis for hazard assessment and vulnerability analysis:
    - Vulnerability analysis
      - ✓ Identify current and future areas of greatest risk
      - ✓ Conduct inventory of people and properties in vulnerable areas
      - ✓ Prepare map showing areas identified above
      - ✓ Analyze policies, programs and ordinances that may affect vulnerability

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- **Objective 12.4**
  - Identify best practice criteria for preparing local hazard mitigation plans:
    - Involve the public
    - Develop clear goals and objectives
    - Develop fact base (hazards assessment and vulnerability analysis)
    - Set priorities for action
    - Link with other plans and policies
    - Develop implementation strategy
    - Monitor and evaluate plan effectiveness

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Public participation in the planning process. (Source: EPA Ohio Office)

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- **Objective 12.5**
  - Participate in an exercise to plan for citizen participation in local hazard mitigation planning:
    - Key questions:
      - ✓ Why is public participation necessary?
      - ✓ Who should be part of the process (who is the "public")?
      - ✓ How will the public be involved (e.g., charrettes, public meetings)?
      - ✓ How will the results of the public participation be incorporated into the plan?
    - Case study: Pacifica, CA

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Case study: Pacifica, CA (Source: USGS)